AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-20. **(Canceled)**

21. **(New)** A method for determination of the stressing force in connecting components by ultrasound injection by means of a programmable arbitrary function generator, the method comprising the following steps:

a) generating an electrical pulse with broadband characteristic representing a signal extended over time and containing all of the frequencies with approximately the same amplitude at the programmable arbitrary function generator,

b) matching the chosen pulse width to the intervals between ultrasound pulse echoes in such a manner that there is no overlap between individual different reflections,

c) selecting the received ultrasound pulse echo in time with respect to at least one reflection and subjecting the echo to a transformation process which is defined for the respective connecting component in such a manner that all of the frequency contributions of the frequency components are shifted in time or with respect to the phase for a defined time which is related to the ultrasound pulse, such that

(d) for this time and in the absence of the prestressing force, the phase angle is always 0 or the phase angle is always π when cosine functions are used to represent the frequency components.

22. **(New)** The method of claim 21, wherein step a) comprises generating an electrical pulse with a predetermined pseudo-static phase angle of the used and/or predetermined frequency components with an essentially constant amplitude and a predeterminable pulse width at the programmable arbitrary function generator.

23. **(New)** A method as defined in claim 21, wherein the step of generating an electrical pulse with broadband characteristic representing a signal extended over time and containing all of the frequencies with approximately the same amplitude at the programmable arbitrary function generator comprises generating the electrical pulse in the form of a linear chirp of the used and/or predetermined frequency components with an essentially constant amplitude and a predeterminable pulse width at the programmable arbitrary function generator.

24. **(New)** A method as defined in claim 21, wherein the steps of generating an electrical pulse with broadband characteristic representing a signal extended over time and containing all of the frequencies with approximately the same amplitude at the programmable arbitrary function generator comprises generating the electrical pulse as pseudo-random noise on the used and/or predetermined frequency components is generated with an essentially constant

amplitude and a predeterminable pulse width at the programmable arbitrary function generator.

25. **(New)** The method as claimed in claim 21, wherein the timing of the centroid of the frequency is a continuous function over the pulse width that is used.

26. **(New)** The method as claimed in claim 21, wherein the pulse center / the pulse start or the pulse end is chosen in accordance with method step c) as the defined time which is related to the ultrasound pulse.

27. **(New)** The method as claimed in claim 21, wherein frequency contents are distributed over a large number of successive ultrasound pulses in accordance with method step a).

28. **(New)** The method as claimed in claim 27, wherein the frequency contents are distributed over 2 to 100 ultrasound pulses.

29. **(New)** The method as claimed in claim 27, wherein measurements over individual frequency range elements in the frequency spectrum of the ultrasound pulse are combined, from which a short signal which is obtained from all of the individual contributions is synthesized.

30. **(New)** The method as claimed in claim 21, wherein the ultrasound pulse has a maximum excitable ultrasound frequency spectrum, with which a spectrum with the maximum excitable bandwidth is excited.

31. **(New)** The method as claimed in claim 21, wherein the ultrasound pulse is generated by an arbitrary function generator or DDS chips or VCOs which are switched on and off at the same time, and a digitizing transient recorder is used for detection of the ultrasound pulse echo.

32. **(New)** The method as claimed in claim 31, wherein the arbitrary function generator and the transient recorder are controlled by the same clock transmitter.

33. **(New)** The method as claimed in claim 32, wherein a repetition rate for the respective individual measurements is derived from the clock transmitter.

34. **(New)** The method as claimed in claim 30, wherein in a number of successive and repeated ultra-sound pulses, a supplementary bandwidth is used in each case which corresponds to the reciprocal of the number of ultrasound pulses, is different and is mutually exclusive.

35. **(New)** The method as claimed in claim 21, wherein the excitation voltage is kept at a minimum by excitation over an extended time, thus lengthening the life of the transducer.

36. **(New)** An apparatus for carrying out the method as claimed in claim 21, the apparatus containing a processor or a microprocessor, and having a programmable arbitrary function generator as well as a digitizing transient recorder with a connection to the processor or to the microprocessor, and a repetition rate generator.

37. **(New)** The apparatus as claimed in claim 36, wherein the arbitrary function generator and the transient recorder are operated with one and the same clock transmitter.

38. **(New)** The apparatus as claimed in claim 36, wherein the arbitrary function generator, the transient recorder and the repetition rate generator are operated with a common clock transmitter.

39. **(New)** The apparatus as claimed in claim 36, wherein the arbitrary function generator is followed by a power amplifier.

40. **(New)** The apparatus as claimed in claim 36, wherein the transient recorder is preceded by a preamplifier or by a programmable-gain preamplifier with a connection to the computer.

41. **(New)** The apparatus as claimed in claim 36, wherein the processor or the microprocessor is contained in a personal computer (PC) or in a laptop.

NEW ABSTRACT:

Please replace the original abstract with the following new abstract:

Abstract of the Disclosure

A method for determination of the stressing force in connecting components, such as screws or bolts, by means of broadband ultrasound excitation employs pulse generator which generates an ultrasound pulse with a randomly distributed phase angle of used and/or resolvable frequency components, with a predeterminable pulse width. The pulse width is matched to the intervals between ultrasound pulse echoes in such a manner that there is no overlap between individual different reflections, and the maximum possible pulse duration is achieved. The received ultrasound pulse echo is selected in time with respect to at least one reflection, and is subjected to a transformation process in such a manner that all of the frequency contributions are shifted in time or with respect to the phase for a defined time which is related to the ultrasound pulse.